

In re Application of: Hanan HERZBERG
Serial No.: 10/511,859
Filed: October 18, 2004
Office Action Mailing Date: February 24, 2010

Examiner: Leon Flores
Group Art Unit: 2611
Attorney Docket: 37476

In the Claims:

1-55 (Canceled).

56. (New) A method of monitoring a modem connection, comprising:
connecting a line interface to a communication link carrying signals of a modem connection, between a pair of end modems separate from the line interface;
passively collecting signals passing on the communication link, between the end modems, through the line interface;
determining one or more physical quality or transmission characteristics regarding the modem connection, responsive to the collected signals; and
providing information on the modem connection, responsive to the collected signals.

57. (New) A method according to claim 56, comprising determining quality or transmission characteristics regarding the modem connection, responsive to signals collected through the line interface, and wherein providing information on the modem connection comprises providing information on the determined characteristics.

58. (New) A method according to claim 56, wherein the modem connection comprises an xDSL modem connection.

59. (New) A method according to claim 56, wherein collecting signals passing on the communication link comprises collecting without sending to either of the modems acknowledgment signals or any other modem tangible signals.

60. (New) A method according to claim 56, wherein providing information on the modem connection
comprises displaying the contents of one or more modem negotiation signals.

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61. (New) A method according to claim 57, wherein providing information on the modem connection comprises providing information on noise levels on the connection.

62. (New) A method according to claim 61, wherein providing information on the modem connection comprises providing information on efficiency or data integrity effects in upper layers caused by the noise levels on the connection.

63. (New) A method according to claim 56, wherein providing information on the modem connection comprises providing information on the symbol mapping used by the connection.

64. (New) A method according to claim 56, wherein providing information on the modem connection comprises displaying information on signaling signals transmitted in parallel to data transmission.

65. (New) A method according to claim 56, and further comprising performing signal tests on test signals transmitted on the connection and comparing the results of the tests to negotiation signals reporting test results from one of the modems.

66. (New) A method according to claim 56, and further comprising forcing a retrain of the modem connection by a same apparatus as collects the signals passing on the communication link.

67. (New) A method according to claim 66, and further comprising forcing the retrain of the modem connection comprises connecting a low impedance circuit, for at least some of the frequency bands carrying signals, to the communication link.

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68. (New) A method according to claim 66, wherein the modem connection comprises a DSL connection and wherein the forcing of the retrain does not interfere with voice frequency bands of the communication link.

69. (New) A method according to claim 56, wherein the modem connection comprises a voice band modem connection.

70. (New) A method according to claim 56, comprising identifying changes in the operation of the modem connection and providing suggested causes of the changes.

71. (New) A method according to claim 70, where the causes are at least a retrain or a bit swap.

72. (New) A method according to claim 70 and wherein at least one of the changes identified belongs to a group comprising:

- a request for retransmission of data;
- CRC errors;
- corrupted bits;
- low performance of Reed Solomon decoding; and
- a request for a change in bit allocation of a frequency band.

73. (New) A method according to claim 70 and wherein at least one of the suggested causes belongs to a group comprising:

- an unusual noise level;
- a low Signal to Noise Ratio;
- a high attenuation level; and
- a modem suffering from skew.

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74. (New) A method according to claim 56, wherein providing information on the modem connection comprises displaying a raw bit content of signals transmitted on the modem connection.

75. (New) A method according to claim 56, wherein providing information on the modem connection comprises providing a warning on a possible tapping of the communication link.

76. (New) A method according to claim 75 and wherein the warning on a possible tapping of the communication link is based, at least in part, on comparing measured spectrums of noise to configured expected spectrums of noise added by a line tapping unit.

77. (New) A method according to claim 56, comprising extracting the data transmitted on the modem connection.

78. (New) A modem connection performance analyzer, comprising:
a line interface adapted to passively collect signals of a modem connection passing on a communication link, between two end modems connected to the link and without injecting modem tangible signals;

a processor adapted to determine one or more physical quality or transmission characteristics regarding the modem connection, responsive to the collected signals;
and

an interface operable by a human adapted to provide information on the determined characteristics.

79. (New) A performance analyzer according to claim 78, comprising

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a low impedance shorting circuit adapted to short at least some of the frequencies of the communication link, responsive to a command from the processor.